

10/18/2011

Page 1 of 1

1214836 - R8 SDMS



Third West Air Monitor Result
Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)'

10/18/2011 08:30 AM

Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbamitz@utah.gov)'"
<cbamitz@utah.gov>

1 Attachment



222285-1.pdf

Joyce & Craig,

We had a positive hit on October 9, 2011. It was one fiber of chrysolite. See the attached. Please let me know if you have any questions or concerns.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com

REI LAB ***Reservoirs Environmental, Inc.***

October 17, 2011

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Laboratory Code: RES
Subcontract Number: NA
Laboratory Report: RES 222285-1
Project # / P.O. #: None Given
Project Description: Rocky Mtn. Power 3rd
West Sub Station

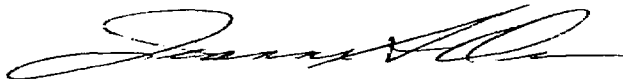
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 222285-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,



Jeanne Spencer Orr
President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 222285-1
Client: R & R Environmental
Client Project Number / P.O.: None Given
Client Project Description: Rocky Mtn. Power 3rd West Sub Station
Date Samples Received: October 11, 2011
Analysis Type: TEM, AHERA
Turnaround: 3-5 Day
Date Samples Analyzed: October 17, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm ²)	(L)		(s/cc)	(s/cc)	(s/mm ²)
3W-100811-S	EM 808582	0.0550	1433	ND	0.0049	BAS	BAS
3W-100811-E	EM 808583	0.0550	1478	ND	0.0047	BAS	BAS
3W-100811-N	EM 808584	0.0550	1447	ND	0.0048	BAS	BAS
3W-100811-W	EM 808585	0.0550	1476	ND	0.0047	BAS	BAS
3W-100911-S	EM 808586	0.0880	950	ND	0.0046	BAS	BAS
3W-100911-E	EM 808587	0.0880	940	ND	0.0047	BAS	BAS
3W-100911-N	EM 808588	0.0880	940	1	0.0047	0.0047	11.4
3W-100911-W	EM 808589	0.0880	940	ND	0.0047	BAS	BAS

NA = Not Analyzed
ND = None Detected
BAS = Below Analytical Sensitivity
Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester
Filter Diameter = 25 mm
Effective Filter Area = 385 sq mm

Digitally
signed by
Gina
Vetrano
Date:
2011.10.17
11:25:03
0609

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 222285-1
 Client: R & R Environmental
 Client Project Number / P.O.: None Given
 Client Project Description: Rocky Mtn. Power 3rd West Sub Station
 Date Samples Received: October 11, 2011
 Analysis Type: TEM, AHERA
 Turnaround: 3-5 Day
 Date Samples Analyzed: October 17, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-100811-S	EM 808582	ND	0	0	0	0	0	0	0
3W-100811-E	EM 808583	ND	0	0	0	0	0	0	0
3W-100811-N	EM 808584	ND	0	0	0	0	0	0	0
3W-100811-W	EM 808585	ND	0	0	0	0	0	0	0
3W-100911-S	EM 808586	ND	0	0	0	0	0	0	0
3W-100911-E	EM 808587	ND	0	0	0	0	0	0	0
3W-100911-N	EM 808588	Chrysotile	1	0	0	0	0	0	1
3W-100911-W	EM 808589	ND	0	0	0	0	0	0	0

*See Analytical Procedure for definitions

**C = Excluded from total due to lack of confirmation

**L = Excluded from total for length less than 0.5 micron (AHERA only)

**A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 10-14-10-18
Due Time: 1020

RESI LAB ***Reservoirs Environmental, Inc.***
 9801 Logan St. Denver, CO 80216 • Ph. 303 984-1886 • Fax 303-477-4276 • Toll Free: 888 RESI-ENV
 Pager: 866-508-2086

RES 222285

INVOICE TO: (IF DIFFERENT)**CONTACT INFORMATION:**

Company: D & R Environmental		Company: Dave Roskelley		Contact: Justin Kargis	
Address: 47 W. 9000 S		Address: 		Phone: 	
Sandy, UT 84070				Fax: 	
				Cell pager: 801 541-1035	
Project Number and/or P.O. #:		Final Site/Overseer Email Address:		Cell pager: 801 828-5219	
Project Description/Location: Rocky Mtn Power 3rd West Sub Station		dave@rrenviro.com			

[illegible]

Number of samples received: 8 (Additional samples shall be listed on attached long form.)

NOTE: REL will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following Sample for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest charge.

Relinquished By: <u>Justin Kozin - FedEx</u> Date/Time: <u>10/10/11</u>										Sample Condition: On Ice <input checked="" type="checkbox"/> Sealed <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>				
Laboratory Use Only Received By: <u>Min Lu</u> Date/Time: <u>10-11-11 1020</u> Carrier: <u>FedEx</u>										Temp. (F°) _____ Yes / No <input type="checkbox"/> Yes / No <input type="checkbox"/> Yes / No <input type="checkbox"/>				
Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

A = Amosite
An = Anthophyllite
C = Chrysotile
Cr = Crocidolite
T = Tremolite

Structure Types

F = Fiber
B = Bundle
C = Cluster
M = Matrix

ND = no structures detected
M = other structure associated with a matrix
NAM = Non Asbestos Mineral
XGB = partly obscured by a grid bar

Sizing Conversion

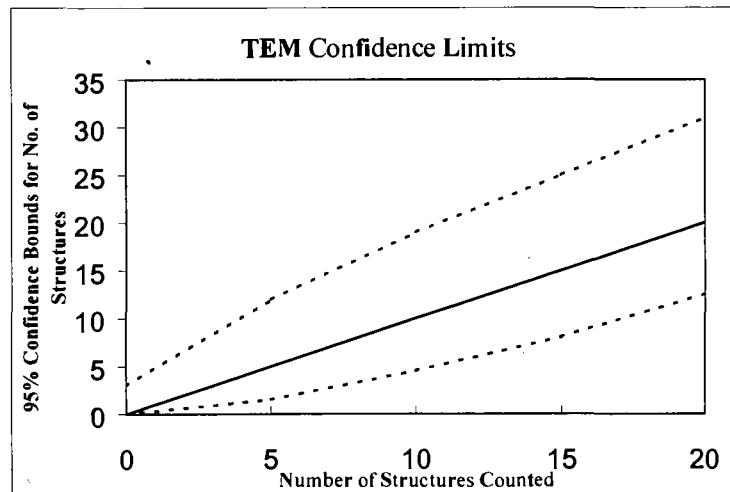
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr
Nathan DelHiero
Angela Heitger
Jonathan Bernard

Paul D. LoScalzo
Mark Steiner
Norberto Zimbleman
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1433
Date received by lab	10/11/11
Lab Job Number:	222285
Lab Sample Number:	808582

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, I=indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-4	ND												
	45-4	ND					Pump A 90% intact			5% debris				
	65-4	ND					Pump B 90% intact			5% debris				
B	H4-4	ND												
	64-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	2010X 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 10 =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	RAK
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1478
Date received by lab	10/11/11
Lab Job Number	222285
Lab Sample Number	808583

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AK
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = ves, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	G4-4	ND												
	F4-4	ND					Prep A 90% ambient 5% debris							
	E4-4	ND					Prep B ~ A							
B	G4-6	ND												
	F4-6	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	201X 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Twoe	

Client :	R&K
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	1447
Date received by lab	10/11/11
Lab Job Number:	222285
Lab Sample Number:	808584

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	10/17/14
Method (D=Direct, I=indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

[illegible]

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX / 10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client :	Rack
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1476
Date received by lab	10/11/11
Lab Job Number:	222285
Lab Sample Number:	808585

F-Factor Calculation (Indirect Preps Onhr):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JTB
Analysis date	10/17/04
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mls (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

[illegible]

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 ^N S
Voltage (KV)	100 KV
Magnification	2010X/10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	950
Date received by lab	10/11/11
Lab Job Number:	222285
Lab Sample Number:	808586

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, t=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibola	C	NAM		Sketch	Photo	EDS
A	H3-3	MS												
	G3-3	MS												
	F3-3	MS												
	E3-4	MS												
B	H3-3	ND												
	H3-3	MS												
	G3-3	ND												
	F3-3	ND												

Rev 3-2008

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N)S
Voltage (KV)	100 KV
Magnification	20KX/10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&K
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	940
Date received by lab	10/1/11
Lab Job Number:	222285
Lab Sample Number:	808587

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-3	ND												
	G3-3	ND												
	F3-3	ND												
	E3-3	ND												
B	F4-3	ND												
	E4-3	ND												
	C4-3	ND												
	E4-1	ND												

Rev 9-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N)S
Voltage (KV)	100 KV
Magnification	20KX/10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 μ m
Scale: 1D =	0.056 μ m
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	940
Date received by lab	10/11/11
Lab Job Number	222285
Lab Sample Number	808588

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	E4-1	ND												
	C4-1	ND					Imp A	70% on hmt			5-7% debris			
	B4-1	ND					Imp B	~A						
	A4-1	F		1	2 1/2	1	CD		✓		1			
B	H5-4	ND												
	G5-4	ND												
	F5-4	ND												
	E5-4	ND												

Rev 3-2009

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100(N)S
Voltage (KV)	100 KV
Magnification	20KX/10KX
Grid opening area (mm ²)	0.011
Scale: 1L =	0.28 μ m
Scale: 1D =	0.056 μ m
Primary filter area (mm ²)	385
Secondary Filter Area (mm ²)	
QA Type	

Client:	R&K
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm ²)	940
Date received by lab	10/11/11
Lab Job Number:	222285
Lab Sample Number:	808589

Analyzed by	JB
Analysis date	10/17/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
	E4-4	ND												
B	G4-6	ND												
	F4-6	ND												
	E4-6	ND												
	C4-6	ND												

Rev 3-2008

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber:	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
Bundle:	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
Cluster:	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
Matrix:	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets of five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening